REMARKS

Administrative Overview

Applicants hereby amend claims 1, 9, and 17, as indicated in the Listing of Claims set forth above. Applicants hereby add new claim 24. Support for the amendments and new claim can be found in the specification as originally filed, and at least at paragraphs [0009], [0011], [0014], [0015], [0028]-[0030], and [0034]-[0041], and in FIGS. 2A and 3. Applicants hereby cancel claims 4, 22, and 23. No new matter is added by the claim amendments or the introduction of the new claim. Claims 1, 3, 5-17, 19-20, and 24 are now pending in this application and are presented for reconsideration.

Applicants thank Examiner Lazorcik for the time and courtesy he extended during a telephonic interview with Steven J. Frank, and his associate Gary Dewar, on July 16, 2009. The following discussion is intended to constitute a proper recordation of such interview in accordance with MPEP §713.04, and also to provide a full response to the Office action.

In the Office action mailed on March 16, 2009, claims 1, 3-17, 19-20, and 22-23 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claims 1, 3, and 5-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Berthold *et al.* (Sensors and Actuators 82, 224-228, (2000)) (hereinafter "Berthold") in view of International Application No. PCT/JP03/00570 to Fukushima *et al.* (hereinafter "Fukushima").

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Berthold and Fukushima, further in view of Sarro (Sensors and Actuators A: Physical, 82(1), pp. 210-218, (2000)) (hereinafter "Sarro").

Claim 12 was rejected under 35 U.S.C. §103(a) as unpatentable over Berthold and Fukushima, further in view of Cozma et al. (J. Miromech. Microeng. 5 (1995) 98-102), (hereinafter "Cozma"), Lee *et al.* (Sensors and Actuators 86(2000) 103-107) (hereinafter "Lee I"), and the ordinary level of skill in the art at the time of the invention.

Claims 13, 14, 15, 17, 19, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Berthold and Fukushima, further in view of the combined teachings of U.S. Patent No. 6,550,337 to Wagner *et al.* (hereinafter "Wagner"), Sarro, Schmidt (Proceedings of the IEEE, 86(6), 1575-1585, (1998)) (hereinafter "Schmidt"), and Lee *et al.* (J. Vac. Sci. Tech. B 12(6), 3425-3430, (1994)) (hereinafter "Lee II").

Finally, claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over Berthold and Fukushima.

For the reasons that follow, Applicants respectfully submit that the claims, as amended, are patentable over these references. Therefore, Applicants request reconsideration and withdrawal of the rejections.

Claim Rejections Under 35 U.S.C. § 112

Claims 1, 3-17, 19-20, and 22-23 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Applicants hereby cancel claims 4, 22, and 23, thereby rendering the rejection of those claims moot. Applicants respectfully submit that the foregoing amendments to claims 1 and 17 overcome the Examiner's rejections thereof and of the remaining dependent claims. Applicants therefore request reconsideration and withdrawal of these rejections.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3, and 5-11 were rejected as being unpatentable over Berthold in view of Fukushima.

Applicants' amended independent claim 1 recites a method for anodic bonding at least a portion of a MEMS device that includes a first layer and "*a first substrate comprising a polycrystalline material having an elastic modulus greater than about 300 gigaPascals*," by "*applying a voltage between the first layer and the first substrate, through electrical contacts in direct contact with each of the first layer and the material having an elastic modulus greater than about 300 gigaPascals*."

Berthold, by contrast, does not teach or suggest these claim limitations. Rather, Berthold teaches depositing a thin film of, for example, silicon carbide, on a first glass wafer to assist in the bonding of that glass wafer to a second glass wafer. In operation, the bonding in Berthold is carried out by applying electrical contacts to each of the first and second glass wafers (as shown, for example, in FIG. 1 of Berthold), with the deposited silicone carbide layer sandwiched therebetween. As a result, there is no electrical contact "*in direct contact with ... the material having an elastic modulus greater than about 300 gigaPascals*," as required by Applicants' amended independent claim 1. In fact, as Berthold's thin film of silicon carbide is necessarily sandwiched between two glass layers to assist in the bonding of those two layers, electrical contacts cannot directly contact the thin film of silicon carbide during bonding.

Applicants respectfully submit that Fukushima fails to cure these deficiencies of Berthold. Specifically, Fukushima appears to describe a method of manufacturing a hermetic seal package. Fukushima does not, however, teach or suggest anodically bonding "*a first layer comprising a glass*" directly to "*a first substrate comprising a polycrystalline material having an elastic modulus greater than about 300 gigaPascals*," as recited in Applicants' amended independent claim 1. Rather, Fukushima merely describes anodically bonding a glass plate to a cylindrical body consisting of a metal (e.g. Iron (Fe), Nickel (Ni), or Cobalt (Co)). These metals all have an elastic modulus significantly less than about 300 gigaPascals. In addition, Fukushima does not teach or suggest "*applying a voltage between the first layer and the first substrate, through electrical contacts in direct contact with each of the first layer and the material having an elastic modulus greater than about 300 gigaPascals*," as also recited in Applicants' amended independent claim 1. Applicants, therefore, respectfully submit that neither Berthold nor Fukushima, alone or in proper combination, teaches or suggests every element of Applicants' amended independent claim 1.

Because claims 3 and 5-11 depend, either directly or indirectly, from amended independent claim 1, and include all of the limitations thereof, Applicants respectfully submit that these claims are allowable as well. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 3, and 5-11 under 35 U.S.C. §103(a).

As set forth above, claims 4, 12-16, 19, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Berthold in view of various combinations of Fukushima, Sarro, Cozma, Lee I, Lee II, Wagner, Schmidt, and the ordinary level of skill in the art at the time of the invention. Applicants hereby cancel claim 4, thereby rendering the rejection of that claim moot. The remaining rejections relate only to dependent claims, which Applicants respectfully submit are patentable in light of the discussions above. None of the references, alone or in combination, teaches or suggests all the limitations of amended independent claim 1, at least because none of the cited art teaches or suggests a method for anodic bonding at least a portion of a MEMS device that includes a first layer and "*a first substrate comprising a polycrystalline material having an elastic modulus greater than about 300 gigaPascals*," by "*applying a voltage between the first layer and the first substrate, through electrical contacts in direct contact with each of the first layer and the material having an elastic modulus greater than about 300 gigaPascals.*" Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of the above-identified claims under 35 U.S.C. § 103(a).

Finally, claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Berthold and Fukushima, and further in view of Wagner, Sarro, Schmidt, and Lee II. Applicants' amended independent claim 17 recites a method for packaging a MEMS component that includes a glass layer and "*a device package comprising a material having an elastic modulus greater than about 300 gigaPascals*" by "*applying a voltage between the glass layer and the package through electrical contacts in direct contact with each of the glass layer and the material having an elastic modulus greater than about 300 gigaPascals.*" In contrast, as discussed above, none of the cited references applied against claim 17, either alone or in proper combination, teaches or suggests these features. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 17 under 35 U.S.C. §103(a).

New Claim 24

With this Amendment and Response, Applicants hereby add new claim 24. Applicants' new independent claim 24 recites "*applying a voltage between the first layer and the first substrate, through electrical contacts in direct contact with each of the first layer and the material having an elastic modulus greater than about 300 gigaPascals.*" As such, Applicants respectfully submit that claim 24 is patentable for at least the reasons discussed hereinabove with respect to claims 1 and 17.

U.S. Patent No. 5,877,070 to Goesele et al.

The Office action makes of record U.S. Patent No. 5,877,070 to Goesele et al. (hereinafter "Goesele").

Goesele appears to describe a method of transferring a thin monocrystalline layer from a first substrate onto a second substrate. See Goesele at Col. 11, ll. 38-45. Goesele expressly requires that the thin layer of transferred material be monocrystalline, stating, for example, that: "*For many applications, especially in the area of semiconductors, monocrystalline material is required in order to fabricate high performance microelectronic or optoelectronic devices.*" [Emphasis added]. Goesele at Col. 1, ll. 12-15. In contrast, Applicants' amended independent claim 1 recites a method for anodic bonding including "*providing a first substrate comprising a polycrystalline material having an elastic modulus greater than about 300 gigaPascals,*" and Applicant's amended independent claim 17 recites "*providing a device package comprising a* *material having an elastic modulus greater than about 300 gigaPascals, formed from polycrystalline silicon carbide*."

In addition, Goesele expressly requires anodic bonding "*at a temperature of 560 degrees centigrade*." See Goesele at Col. 12, ll. 12-15. In contrast, Applicants' new independent claim 24 recites a method for anodic bonding including "*causing the first layer and the first substrate to have a temperature that does not exceed about 350 ^oC*" when applying a voltage, while Applicants' amended independent claim 17 recites "*causing the first surface of the package and the glass layer to have a temperature value that does not exceed about 350 ^oC while applying a voltage*."

Applicants therefore respectfully submit that amended independent claims 1, 17, and 24, and all claims dependent therefrom, are patentable over Goesele.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration, withdrawal of all grounds of rejection and objection, and allowance of claims 1, 3, 5-17, 19-20, and 24 in due course. The Examiner is invited to contact the Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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